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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, THU V

ART UNIT PAPER NUMBER

3661

DATE MAILED: 07/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

08/748,935

Applicant(s)

IMAI ET AL

Examiner

Thu V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2,3,5,9-22,29,34,35,37-40 and 45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-22 and 37 is/are allowed.
- 6) ☒ Claim(s) 2,3,5,29,34,35,38-40 and 45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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### **DETAILED ACTION**

The Request for Continued Examination filed on April 15, 2002 has been approved and entered. The amendment filed on April 15, 2002 has been considered. By this amendment, claims 41-44 have been canceled, claims 29, 38 and 45 have been amended and claims 2-3, 5, 9-22, 29, 34-35, 37-40, and 45 are now pending in the application.

#### ***Specification***

1. The disclosure is objected to because of the following informalities:
  - a. In the specification page 2, line 10, the "tome" should be corrected to "time".
  - b. In the specification page 3, lines 13-14, the "an method" should be corrected to "a method".
  - c. In the specification page 8, lines 13, 14; page 14, line 14, the "longitudes BCM and meridians BCP" should be corrected to "longitudes BCP and meridians BCM" to correspond with fig.10 and the disclosed detailed in the specification page 8, line 6.
  - d. In the specification page 9, lines 3-15, several details such as the coordinates wx, wy, etc should be illustrated in the drawings.
  - e. In the specification page 9, line 14, the "form data TD" should be corrected to the "form data TD/".

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- f. In the specification page 13, line 3, the "point P" should be illustrated in the drawing.  
What is the auxiliary point?
- g. In the specification page 12, line 12, the "end point of the axis AX1" should be illustrated in the drawings. What is the end point AX1?
- h. In the specification page 21, lines 4-5, the "point R" should be illustrated in the drawings.  
What is point R?

***Claim Rejections - 35 USC § 103***

- 2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 3. Claims 2, 5, 29, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura (U.S Patent No. 5,615,318).

As per claim 29, and 45, Matsuura teaches a computer-implemented method of generating three-dimensional form data the method comprises the steps of: obtaining an electronic data of a three dimensional form model (col.7, lines 42-50); generating a plurality of lines along a surface of the model (col.12, lines 7-20, lines 43-50; col.14, lines 24-33); modifying the lines by moving a

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line so that the plurality of lines still correspond to contour of the model (col.20, lines 3-7, lines 61-67).

Matsuura does not explicitly disclose that the generated lines correspond exactly to contours of the model. However, Matsuura teaches that the corresponding level of the lines to the contours of the model is determined from the expansion factor (col.8, lines 47-59; col.11, lines 34-47). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to adjust the expansion factor of Matsuura to zero in order to obtain the generated lines that corresponds exactly to the contours of the model, since adjusting a value to obtain appropriate relative position of the lines to the contour of the model requires only routine skill in the art.

As per claim 2, 5, Matsuura does not explicitly teach that the lines comprises parametric or splines curve groups. However, expressing the lines in parametric or spline curves would have been well known. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to express the lines of Matsuura in parametric or splines curves format in order to facilitate manipulating the lines by changing the parameter of the expression of the lines.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura (U.S Patent No. 5,615,318) in view of Letcher, Jr. (U.S Patent No. 5,627,949).

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As per claim 3, Letcher teaches defining control points and moving control points along the surface of a model (col.16, lines 29-40). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the control point taught by Letcher to move the lines along the surface of the object of Matsuura. The motivation for this would have been to provide the user a convenient graphical user interface so that the user can adjust the lines of Matsuura to obtain a desired amount of lines he needs.

4. Claims 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura (U.S Patent No. 5,615,318) in view of Sato et al (U.S Patent No. 5,754,680) (Sato '680).

As per claim 34, Matsuura does not explicitly teach generating the sum data representing the generated lines such that the quantity of the summary data is smaller than the quantity of the three dimensional form data. However, Matsuura teaches the capability to obtain three dimensional form data (col.7, lines 43-48) and the capability of deleting the generated lines (col.20, lines 3-7), and Sato '680 teaches generating a sum of data for representing modified lines with summary data that is smaller than the quantity of the obtained three dimensional form data (col.8, lines 53-61). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to represent the generated lines of Matsuura with data and represent lines with the summary data that is smaller than the three dimensional form data as taught by Sato in order to simplify the design and to reduce the number of data to increase data processing speed.

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As per claim 35, Matsuura teaches obtaining the electronic three dimensional form data from a camera (col.7, lines 43-48). Matsuura does not explicitly disclose a generator for generating the electronic data. However, Sato '680 discloses a generator that provides electronic data representing a three dimensional model (col.5, lines 16-19). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the generator of Sato to the shape input unit of Matsuura in order to convert the analog data from the camera of Matsuura to digital data that is compatible with the microprocessor of Matsuura.

5. Claims 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al (U.S Patent No. 5,754,680) .

As per claim 38, Sato teaches receiving a first electronic data of a three dimensional model (col.3, lines 29-38). Further, since Sato teaches a first set of data that corresponds with the three dimensional model exactly (col.3, lines 29-38; col.5, lines 16-19), further, since the first set of data is obtained from the complete surface of the model, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to obtain the second and third set of data that correspond exactly on the first and second portion of the model when only portions or a portion of the first data representing the first portions and the second portion is extracted, since extracting a subset of data as needed from the first set of data requires only routine skill in the art.

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As per claim 39-40, Sato '680 discloses generating the second and third data which are extracted from the first data (col.8, lines 44-61). Sato '680 does not explicitly teach projected lines. However, projecting lines onto a surface of an object would have been well known. It would have been obvious to a person of ordinary skill in the art at the time the invention was made project lines onto the surface of Sato '680 in order to easily generating lines on a surface using conventional line projection method. As to claim 40, Sato '680 does not explicitly disclose changing the positions of the first and second portions by changing the lines to be projected. However, Sato '680 discloses lines that makes patches and changing the patches to modify the set of data (col.8, lines 53-57; col.6, lines 1-4). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to change the patches of an area by adjusting the lines which define the patches in order to change the quantity of data.

***Allowable Subject Matter***

6. Claims 9-22, and 37 are allowed.

***Response to Arguments***

7. Applicant's arguments with respect to claims 2-3, 29, 34-35 have been considered but are moot in view of the new ground(s) of rejection.

With respect to claim 38, refer to section 35 USC 103 rejection above. Applicant should note the claimed language in claim 38, claim 38 claims the second data set is obtained from a first



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portions of the model, and the third data set is obtained from a second portion of the model, since the first portions, and the second portion of the model is just a subset (only a section or a portion) of the model (fig.5A) of Sato, the second and third data obtained from the portions are obviously smaller than the first data.

In response to applicant's argument on page 7, last paragraph, claim 38 does not claim if the model should be modified. Further, refer to fig.5A, 5C, and 5E of Sato '680, the control points (col.5, lines 47-51) are actually *on the surface of the model*. Since the control points are still on the surface of the model, those control points constitute the second set of data that corresponds exactly on the surface of the model. Although the patches connecting the control points does not correspond exactly with the model, the control points forming the data set themselves do correspond exactly on the surface of the model. Similarly, when the third data set is generated, if the third data set is selected at every other control point of the second data set, the third data set follows the model exactly as well.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(703) 305-7687, (for formal communications intended for entry)

**Or:**

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(703) 305-7687 (for informal or draft communications, please label  
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park V, 2451 Crystal Drive, Arlington, VA.,  
Seventh Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Nguyen whose telephone number is (703) 306-9130. The examiner can normally be reached on Monday-Thursday from 8:00 am to 6:00 pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Cuchlinski, can be reached on (703) 308-3873. The fax phone number for this Group is (703)305-7687.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703)308-1111.



Thu Nguyen

June 21, 2002